

POSTHUMOUS TRIBUTE TO PROFESSOR MAREK DIETRICH 1934-2009



On July 31, 2009, Professor Marek Dietrich died in Warsaw at the age of 75. He was buried in the Old Powązki Cemetery in Warsaw. His departure was an irreparable loss to his friends, co-workers, and all Polish scientific community.

Professor Marek Dietrich was an outstanding scientist, a man of considerable authority; he was a full member of the Polish Academy of Sciences, Doctor Honoris Causa of Warsaw University of Technology and the Military University of Technology. As an academic teacher, he rendered great

services in organizing educational process at Warsaw University of Technology. During his entire career, he remained intensely active in many fields of science and education, working with special dedication for the sake of Warsaw Technical University and all higher education institutions in Poland.

Professor Marek Dietrich was born on 14th November, 1934. In 1956, he began his professional career at Warsaw University of Technology. From this School, he received consecutive scientific degrees and academic positions:

- Master of Science and Engineer at the Faculty of Mechanical Engineering in 1956,
- Ph.D. in Technical Sciences at the Faculty of Automotive and Construction Machinery Engineering in 1961,

- Qualification as a university professor (habilitation thesis) at the Faculty of Power and Aeronautical Engineering in 1966,
- The title of Associated Professor in 1972,
- The title of Full Professor in 1976.

Professor Marek Dietrich was one of the youngest academic teachers who qualified as a university professor – he was only 32 when he defended his habilitation thesis.

He started his professional work as a Teaching Assistant at the Chair of Cranes of the Faculty of Automotive and Construction Machinery Engineering. After obtaining his PhD degree, he took the position of an Assistant Professor at the Chair of Machine and Mechanism Theory. In 1970, he was appointed for the position of a Head of the newly created Department of Machine Design Fundamentals at the Institute of Applied Mechanics of the Faculty of Power and Aeronautical Engineering. Professor Dietrich occupied this position till 1973, to the moment when he was elected as a Dean of the Faculty. After the term of office was over, Professor Dietrich was appointed as a Director of the Institute of Aeronautics and Applied Mechanics for the term of 1976-1979. In 1981, the first election of university authorities was held in Poland, and Professor Dietrich was elected as a Vice-Rector of Warsaw University of Technology. He held this position during two consecutive terms; after that, in 1987, he returned to his function of the Head of Department of Machine Design Fundamentals.

Owing to his noble attitudes in the difficult period of the nineteen eighties, owing to his courage and uncompromising stance in defending students and employees, Professor Dietrich gained a great respect among his academic colleagues. Consequently, in 1990, he was elected as a Rector of Warsaw University of Technology receiving an overwhelming majority of votes.

Professor Dietrich held the function of the Rector for two consecutive terms, and his work had a great impact on the University in the period of system transformation. At that time, Poland regained his sovereignty and was becoming a state of law. The universities gained autonomy and had to accommodate to the new conditions, to deal with the demands of market economy. Personal contribution of Rector Marek Dietrich to this undertaking was enormous. During the period when he was the rector, a new Statute of the University was developed and introduced, a new management system and new accounting system was applied. These new regulations gave the faculties financial independence, and strengthened authority and responsibility of the deans. Thanks to the initiatives of Rector Marek Dietrich, the number of students significantly increased, educational process was modernized, and the curriculum of the University – traditionally concentrating on technical sciences – was enriched by introducing economic and social studies. The newly

created School of Business was conducted in cooperation with the HEC – School of Management in Paris, London Business School and Norwegian School of Economics and Business Administration. Many faculties of our University were modernised, among them the Faculty of Electronics and Information Technology, the Faculty of Mechatronics, and the Faculty of Production Engineering. Rector Marek Dietrich promoted self-government of university students, and was well disposed towards creating new students' organizations – appropriate for new political and social reality in the country.

The transformation processes carried out at Warsaw University of Technology provided model solutions for other Polish universities, thus enhancing the prestige of our University in the Polish scientific community.

After completing his second term in office as the Rector – which excluded the possibility of being elected once again – Professor Dietrich was appointed as a Director of the Institute of Contemporary Civilization Problems, an interdisciplinary institute created jointly by Warsaw University, Warsaw University of Technology, Warsaw School of Economics, Medical Academy of Warsaw (presently – Warsaw Medical University), and Warsaw University of Life Sciences – SGGW. At the same time, he became a member of the Commission for Ethics and the Chapter of the Medal of Warsaw University of Technology.

Heading over the Institute of Contemporary Civilization Problems was an important stage in scientific career of Professor Dietrich. His main interests were in the field of fundamental sciences: theoretical mechanics, principles of mechanical engineering, as well as fundamental technical problems, in a broad sense, together with their relation to social problems and relationships. In this activity, Professor Dietrich revealed broad horizons of his thinking, humanistic attitudes, sensitivity and understanding of complicated social processes.

The main areas of scientific activity of Professor Dietrich were the following:

- Machine dynamics, reliability and safety in complicated systems;
- Mathematical modelling, including stochastic modelling of mechanical devices, and, in the later period, also modelling of biological objects;
- Computer-aided design methods for developing and producing joint implants, in particular the implants of hip joints and cubital joints.

His research on stochastic modelling of dynamic processes established the basis for the monograph "Introduction to stochastic theory of machines", published by the PWN (State Scientific Publishers) in Warsaw in 1972. This was the first monograph in Poland, and one of the first in the world, which comprehensively presented the problems of stochastic modelling of dynamic processes taking into account the aspects of reliability and safety.

The research on modelling biological objects was primarily concerned with the human locomotory system. It concentrated on the most difficult osteo-muscular system, the vertebral column. The developed models of vertebral column took into account many previously neglected problems, such as mutual interactions between the system elements (osseous system, muscles, ligaments) and liquids (nucleus pulposus, abdominal organs). The works of the team of mechanical engineers, computer engineers, as well as medical doctors – orthopaedists conducted by Professor Dietrich contributed to developing one of the most advanced models of vertebral column. This achievement made it possible to explain the influence of various mechanical factors on the development of some commonly-known impairments of the column. Other works conducted by Professor Dietrich in the domain of biomechanics were concerned with computer analysis of loads in hip and cubital joint implants, designing the properties of the implants, and accommodating them to specific needs and expectations of the patient.

Professor Dietrich supervised ten PhD theses. The results of his research and analyses were published in over 210 books and papers (including 190 articles, 8 monographs, 2 academic textbooks and 7 course books). His works were published by such publishers as Springer Verlag, Meritns Nijhoff, the PWN (State Scientific Publishers), the WNT (Scientific and Technical Publishers) and the Ossolineum Publishing House. His papers appeared in international scientific magazines such as *Journal of Mechanisms*, *Spine*, *Rachis*, *Journal of Engineering in Medicine*, and others.

Among the publications by Professor Dietrich we can distinguish, besides of the previously mentioned ones, the following most important positions – books and book chapters:

- “Stochastic Dynamics” in: *Dynamics of Machines*, Ossolineum, 1974, pp. 134-163;
- “Fundamentals of Machine Design”, Publishers of Warsaw University of Technology, Part I – 1984, 158 pages, Part II – 1985, 113 pages (two editions);
- “Fundamentals of Machine Design”, Collective work, edited by M. Dietrich, First Edition by PWN, 1989, Second Edition by WNT, 1996, Third Edition by WNT, 1999.

Besides of his research work, Professor Dietrich greatly contributed to modernization of educational process at the University, and actively participated in accommodating it to contemporary needs. He was one of main initiators of works aimed at changing the program of the subject “Fundamentals of Machine Design” in order to give this subject modern contents and form. Thanks to this new program, the FMD – which became a basic subject for undergraduate students of mechanical faculties – allowed the students to apply

a comprehensive knowledge on the processes and stages of machine design, legal and physical limitations of decisions made by the designer, modelling principles and algorithms of mathematical models, optimization methods, and the analysis of fatigue life, reliability and safety. Professor Dietrich was the Editor-in-Chief of the above-mentioned, three-volume textbook “Fundamentals of Machine Design” (which had three editions). The co-authors of the textbook were professors lecturing on this subject at Warsaw University of Technology and other Polish universities.

In 1989, Professor Dietrich was elected as a Corresponding Member of the Polish Academy of Sciences, and in 2004 he became a Full Member of the Academy. He was also a Full Member of the Warsaw Scientific Society. He was granted a title of Honorary Member of the Polish Society of Theoretical and Applied Mechanics; he obtained this title in recognition of services rendered for the Society. Professor Dietrich was a long-term member and activist of this society and fulfilled the function of President of the Main Board.

For many years, Professor Marek Dietrich headed over Editorial Boards of scientific magazines such as “Journal of Theoretical and Applied Mechanics”, *Archiwum Budowy Maszyn* (Polish edition), and later “The Archive of Mechanical Engineering”. He was also a member of international advisory committee of the magazine “Industry and Higher Education” (Great Britain).

Professor Dietrich participated in works of the committees appointed by the Presidium and the Department IV of Technical Sciences of the Polish Academy of Sciences. In the years 1993-1996 he was the President of the Conference of Rectors of Warsaw Universities, and in 1992-1995 he fulfilled the function of Vice-President of the Council for Science acting by the appointment of the President of Poland. Other prestigious functions fulfilled by Professor Dietrich in these years were: Member of the Group for Awards appointed by Prime Minister of Poland (since 1998), Member of the Council of the Kronenberg Foundation, and Member of the Trust Council of the Kosciusko Foundation (in the years 1996-2001).

As a rector of Warsaw University of Technology, he initiated actions aimed at establishing cooperation between academic community and the economy sector. Professor Dietrich was the founder and the first president (in the years 1992-1998), and later the Honorary President of the Polish Academic-Economic Forum, which was composed of outstanding leaders of enterprises, businessmen and rectors of many universities. In the years 2001-2007, Professor Dietrich fulfilled the function of Vice-President of State Accreditation Committee for higher education.

In his career, Professor Dietrich was many times awarded with diplomas, prizes, medals and distinctions. Among the most prestigious ones, we can

mention the Crosses of the Order of Polonia Restituta of Chevalier, Officer and Commander Grade, the Medal of the National Education Commission, and the Medals of Merit awarded by the cities of Warsaw and Płock. In 1996, Professor Marek Dietrich received the title of Doctor Honoris Causa from the Military University of Technology, and in 2001 – the same title was awarded by Warsaw University of Technology. Yet another evidence of recognition of his services for the scientific community was the title of Honorary Member of the Płock Scientific Society.

The students awarded him with honorary memberships of the Song and Dance Ensemble of Warsaw University of Technology (in 1996) and the Board of European Students of Technology – BEST (in 1999).

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